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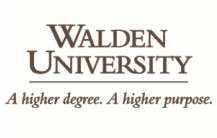

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Effectiveness of Early Childhood Programs on the Literacy Achievement of Kindergarten Children

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Lashica Cox

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the review committee have been made.

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Walden University
2016

Abstract

Effectiveness of Early Childhood Programs on the Literacy Achievement of Kindergarten Children

by

Lashica Cox

EdS, Nova Southeastern University, 2006

MS, Jackson State University, 2000

BS, Jackson State University, 1999

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

June 2016

Abstract

Early childhood development programs enhance children's development of knowledge, skills, and processes. Despite efforts to improve early childhood education in the United States, poor student performance in early literacy and kindergarten achievement is still occurring, and questions remain unanswered about the utility of early childhood education programs. Drawing from the theory of constructivism, the purpose of this quantitative, quasi-experimental, retrospective study was to determine the effectiveness of early childhood programs on the literacy achievement of kindergarten children. The research question addressed the differences in literacy achievement of kindergarten children based on the early childhood programs they attended. Using repeated measures analysis of variance tests for 501 student test scores, no significant interaction effects existed between program participation and gains across time for prewriting (F [2, 998] = 0.87, p = .42), cognitive (F [2, 998] = 0.84, p = .43), or language (F [2, 998] = 1.26, p = .28). However, using the Pearson correlation coefficient, younger participants had significantly more gain from pretest to posttest for prewriting (r [499] = −.14, p = .002) and cognitive (r [499] = −.21, p = .001) but less gain for language (r [499] = .10, p = .03). Knowing that literacy achievement can be improved in an early childhood setting contributes to the knowledge base on the effects of early learning. Educators could benefit from these findings when implementing early childhood policies and adopting effective practices to help develop successful readers in kindergarten and beyond.

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Dedication

This is study is dedicated to my beloved mother who is here with us in spirit. I also would like to dedicate this study to my husband, Trey, my children, Madison and Mason, and my entire family for their support as I completed my doctoral degree.

Acknowledgments

I would like to acknowledge my mother and father for teaching me that you can do all things through Christ. They taught me to dream big and strive for excellence. I would also like to thank my committee chair Dr. Simon, my family, and my friends who have helped me to reach this point in my academic career.

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Section 1: Introduction of the Study

An effective early childhood prekindergarten program is a cohesive, comprehensive, structured, pedagogical, and appropriate curriculum with attention to cognitive and social skill development that informs young children's education (National Association for the Education of Young Children [NAEYC], 2009b). The bases of these early childhood programs are effective practices across all domains in early childhood education and crucial elements of research findings about the relationship between social factors and a child's learning environment and interactions (NAEYC, 2009a). The education of a young child in any society is a significant factor that is a benchmark for future success. Several analyses of early childhood programs have shown that kindergarten endeavors are a worthwhile investment that parents, guardians, and members of society should consider (Barnett, Frede, Mosbasher, & Mohr, 1987; Reynolds, Temple, Robertson, & Mann, 2001). Nobel Prize laureate economist James Heckman noted that each dollar invested in quality early childhood education delivers economic gains of 7% to 10% each year through increased school achievement, healthy behavior, and adult productivity (National Institute for Early Childhood Education Research, 2012).

Cognitive development, which is the acquisition of mental process needed for thinking and making sense of the world, affects young children's education (Cherry, 2008). Early childhood experiences are crucial and essential to cognitive development and healthier lifestyles for children (Bowman, Donovan, & Burns, 2001; Magnuson, Meyers, Ruhm, & Waldfogel, 2003). Local and national policy makers are constantly

establishing new guidelines for early childhood programs and focusing on improving the quality of early childhood education (Bowman et al., 2001; Magnuson et al., 2003). Guidelines and standards serve as a benchmark of early childhood education programs.

An evaluation of early childhood education programs in the United States such as preschool full day, preschool half day, center-based childcare, home-based child care, Head Start, and similar programs in other countries revealed several positive effects of early childhood education (Currie, 2001; U.S. Department of Health and Human Service, 2008). Although the evaluation yielded the overall positive effects of early childhood programs, it remained unclear what types of programs are most effective for a young child's education. Studies have shown a soaring correlation of early childhood programming and academic effect on young children into the primary grades and high school (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004; Barnett, 2008; Camilli, Vargas, Ryan, & Barnett, 2010; McKey et al., 1985; Winter & Kelley, 2008).

Prekindergarten education has significantly affected children's cognitive development (Camilli et al., 2010). Researchers have shown the effectiveness of kindergarten programs for young children who face challenges such as poverty or living with disabilities (Karolyn, Kilburn, & Cannon, 2006). The findings from this study will help educators and policy makers identify effective programs that enhance literacy.

Background of the Problem

Since the beginning of the 21st century, several state lawmakers and parent groups have advocated for universal access to high-quality prekindergarten education because such educational programs offer young children the experiences they need and

minimize the achievement and performance gaps that exist between advantaged and disadvantaged children (U.S. Department of Health and Human Services, 2010). The United States needs an early childhood education system or program that is public, is transparent, has high standards, and receives sufficient funding to accommodate all children's needs (Goffin, Martella, & Koffman, 2011; Kagan & Kauerz, 2008).

In the United States, almost every state has a provision of funds for selected preschool programs for children under the age of 5years. Many educators and policy makers have indicated that this is notable progress, although there are limitations to the depth of early childhood programs because approximately 12% of 3- to 4-year-olds qualify for state-funded programs. Other key factors in the dissemination of early childhood programs are administration, service providers, policies, and targeted communities. The following points provide an overview of the state of early childhood programs in the United States, as reflected by the inclusion criteria approach (U.S. Department of Education, National Center for Education Statistics, 2012):

- Twenty-eight states offer early childhood programs to 3- and 4-year-olds.
- Twenty-one states have programs for children from low-income households and children with challenges.
- Eight states require all childhood instructors to have a child development associate and bachelor's degree as an equivalent or a credential.
- Thirty states require a ratio of 1:10 adults to children for all early childhood programs.

- Fourteen states have required school readiness guidelines, standards, and programs when teaching young children.
- Thirty states have a provision of funds for full- and half-day kindergarten, nine states have funds for full-day kindergarten, and five states provide funds for half-day kindergarten programs only.
- Seven states with full- and half-day kindergarten program funds require kindergarten enrollment.

Early childhood programs that offer young children experiences and skills that promote cognitive, social and emotional, physical, adaptive, and communicative development are often of high quality. The federal government has made notable strides in terms of the shift of attention to the provision of early childhood education while considering the integration of quality programs. For example, since 1990, 10 states have provided early childhood education programs and 46 states and the District of Columbia provide funds for selected kindergarten programs for children under the age of 5years (Barnett, Carolan, Squires, & Clarke Brown, 2013).

According to the 2013–2014 Tennessee Voluntary Pre-Kindergarten fact sheets, the number of prekindergarten classrooms quadrupled from 2005 to 2013, and educators service more than 18,000 children. The Tennessee program received recognition as a national leader in prekindergarten quality and achieved nine of 10 quality standards in 2012 (National Institute for Early Education Research, 2012). Feldman (2000), the president of the American Federation of Teachers, issued a challenge to move from low-quality care in several early childhood programs and to strive for a kindergarten

experience that adequately prepares young learners to succeed in school and in life. The challenge included a call for a national commitment to universal, voluntary, and high-quality early childhood education programs known as Kindergartner-Plus (Wilgoren, 2001).

Research on the effectiveness of early childhood education programs echoes Feldman's (2000) dissatisfaction of early childhood education in the United States. According to researchers at Quality Initiative, the United States is one of the worst providers of early childhood programs in the industrialized world. Public funds target low-income children, but early childhood programs do not serve all eligible children from poor and middle-class families and children with disabilities. In 2000, of the $25 billion spent on early childhood education, only one in every 12 eligible children younger than the age of 5 years received needed assistance (Committee for Economic Development, 2002). According to Barnett and Masse (2001), the federal government needs $25 to $35 billion to extend quality and free early childhood programs to all children younger than the age of 5 years in the United States. Preschool programs differ in quality, affordability, availability, and accessibility of early childhood programs has complicated learning among young learners in the United States. In addition, the cross-cutting issues of early childhood education programs in the United States do not receive the attention needed. For example, social service agencies, school districts, family support programs, state educational programs, and other overlapping entities separate early childhood programs (*Education Week,* 2002).

Effective early reading programs take into consideration early reading practices among young learners so that they have cognitive and early reading skills and thus avoid reading difficulties. Some of the functions of early reading programs are as follows:

- Enhance support of local efforts of promoting early language, reading development, and literacy development of kindergarten children, especially children from low-income families.
- Provide kindergarten children with learning opportunities in high-quality language and literature-rich learning environments so they can acquire the fundamental skills and knowledge necessary for reading development among young learners.
- Provide literacy and language activities based on empirical studies and support age-appropriate skills in oral language (vocabulary development, expressive language, and listening comprehension), phonological awareness (rhyming, blending, and segmenting), print awareness, and alphabet knowledge (letter recognition).

Phonological awareness in early childhood programs involves the aptitude to recognize and formulate oral rhymes, distinguish working syllables in oral language through blending and segmentation, and work with an individual to develop vocabulary through print, letter knowledge and sound. Daily teacher-directed instruction is a key program in phonological awareness. Through circle-time experience, children can engage in additional teacher- and child-initiated activities to build phonological awareness. Other

programs include reading books, singing songs and rhymes, working with patterns of language sounds, and listening to poems and stories (NAEYC, 2009a).

Oral language is the development of receptive and expressive spoken language such as vocabularies, speech use, syntax, and oral comprehension. Children develop vocabulary and language within the context of themes, which conforms to studies in which researchers have highlighted the importance of reading aloud and building story-time lessons around multiple sessions. In this regard, children have the opportunity to listen to fiction and nonfiction and thus work with concepts and vocabularies derived from the books. In addition, each circle-time experience starts with explicit oral language development sessions (Honig, 2007).

Knowledge of the purposes and conventions of print is a significant factor of early childhood education. Children are exposed to a print rich environment through books, poems, storybooks, posters, dictation and song charts. Print awareness activities include teachers leading lessons that allow prekindergarten children to use their fine motor skills by using hand and refine wrist movement to construct letters, numbers shapes. These activities help children understand the messages that print media carry. Through encounters with print media, children can develop the critical concepts of writing and reading, thus enhancing their literacy and cognitive skills. Young learners can achieve alphabetical letter recognition through different programs. These programs include teaching children letter sounds and letter forms. In this regard, children have opportunities to connect in activities that make letter sound discoveries significant to them (Pullen & Justice, 2003).

Problem Statement

Despite numerous efforts to improve the early childhood education programs in the United States, a significant number of children at the kindergarten level lack the necessary skills to do well in school (U.S. Department of Education, Office of Civil Rights, 2014). According to the Office of Civil Rights data, more than 140,000 kindergarten students in the United States did not advance to first grade in the 2011−2012 school year, representing approximately 4% of all kindergarten students in public schools. Many of the children lacked basic skills such as knowledge of numbers and letters, knowing how to interact with teachers and peers, and knowing how to hold a book. Such deficiencies can lead to achievement gaps between disadvantaged and advantaged students (Heckman, 2006). This achievement gap has narrowed since 2005 but remains wide. Without opportunities to learn basic skills at a young age, students from a variety of backgrounds lag behind later in life. Many children from disadvantaged backgrounds have limited access to early childhood programs and are at greater risk of falling behind than are those from advantaged backgrounds.

Many parents cannot make sense of the available programs for their children implying that even when high-quality programs are available, most low-income families cannot access them because of a lack of information. This quantitative, quasi-experimental, retrospective study examined the effect of early childhood prekindergarten programs on literacy achievement. The findings may help educational leaders develop effective curriculum and instruction, professional development, collaboration with parent

and strong family engagement of young learners, as well as help meet state and national standards.

Purpose Statement

The purpose of this quantitative, quasi-experimental, retrospective study was to examine the effect of early childhood programs on the literacy achievement of kindergarten children using secondary data consisting of Learning Assessment Profile (LAP-3) pretest and posttest scores for preschool children entering kindergarten in a school district in Shelby County, Tennessee. The analysis and comparison included data on students who participated in Head Start program and students who attended some other preschool program before they entered kindergarten. The findings included information useful to early child childhood practitioners directly involved with children and their families, policymakers who design policies and decisions that guide early childhood education and managers who design early childhood programs and funding mechanisms. The study sought to identify programs that are most beneficial for students. Proponents of each early childhood program participated in interviews to help triangulate the findings.

Nature of the Study

The study involved determining the effect of early childhood programs on literacy improvement. The literacy scores were used from the LAP-3 assessment taken by students in the Shelby County School District in 2012. The student scores were below proficiency according to Tennessee State Standards guidelines. Educators administered a

second exam at the end of the preschoolers' second term to see whether improvements in literacy occurred from one year to the next.

The target population was students in preschool in 2012−2013 who scored below proficient on the literacy portion of the LAP-3 assessment. The population includes 35% of the Shelby County prekindergarten students who were below proficient on the LAP-3 (Shelby County Head Start, 2010). The study included numeric codes to protect the identity of the students. The data analyzed was from the 2012−2013 LAP-3 exams. The study involved comparing the scores from one year to the next to the type of early childhood program in which each student participated.

By using criterion-referenced tests to measure a student's performance, I was able to compare the variables and measure them subjectively using the quantitative methods. The study involved comparing existing variables, a quantitative research study is appropriate. The study was retrospective in that the district leaders had collected the data to compare but not analyzed the data. The study involved comparing test scores from 2012−2013 with the literacy achievement provided by school district leaders.

Qualitative research is not appropriate for a study that involves testing hypotheses (Walonick, 2004). Qualitative data collection involves setting boundaries for a study and collecting information through observation, interviews, and documents (Walonick, 2004). This study involved controlling predetermined categories and, therefore, a quantitative study was more appropriate.

Data were triangulated to provide reliability from other sources (Jupp, 2006). Interviews with preschool teachers provided insight into the structure and the design of

the classroom. Interview data allowed for a more in-depth understanding of multiple viewpoints, beliefs, attitudes, and perceptions.

Research Question

The following research question guided the research study: What is the difference in achievement between students who attend different types of early childhood programs?

Hypotheses

Testing the following hypotheses will reveal an answer to the research question:

$H1_0$: There is no difference in achievement between students who attend different types of early childhood programs.

$H1_a$: There is a difference in achievement between students who attend different types of early childhood programs.

The dependent variable is student literacy scores, as measured on the LAP-3 assessment. The independent variable is the type of early childhood program attended. The programs of interest are Head Start and child care.

Theoretical Framework

The theoretical foundation of early childhood academics stems primarily from the premise that children learn best through play and cognitive development (Beaty, 2009). Early childhood education often refers to educational programs geared toward children from birth to 8 years old. Early childhood is the most crucial stage of a person's life (Bredekamp & Copple, 2009). The focus of the earliest early childhood programs is on children learning through play, as based on the research of Piaget. Piaget's research is centered on the power of play and the idea that children learn more efficiently and gain

more knowledge when they have the opportunity to play through cognitive development (Piaget, 1981). Constructivism is a learning theory used to elucidate how people acquire information and discover. Piaget (1968), a cognitive constructivist, noted that knowledge is representative of each person's existing reality. Individuals combine new knowledge with old knowledge to form new ideas.

Vygotsky (1978), a social constructivist, indicated that children learn by working within their zone of proximal development, which is "the distance between actual developmental level determined by independent problem solving and the level of potential development as determine through problem solving under adult supervision or in collaboration with capable peers" (p. 86). Vygotsky further contended that language emerges from the simple means of social contact (Engleart & Mariage, 2011; Tracey &Morrow, 2006).

Holdaway's (1979) theory of literacy development includes three postulations: (a) natural development pattern of literacy skills, (b) learning literacy through four major processes, and (c) teaching methods that will improve the development of literacy. These three assumptions continue to drive the theory of literacy. Oral language, imitating sounds, and vocalizing words are examples of developmental language progression (Genishi & Dyson, 2009).

Definition of Terms

Criterion-referenced test: A criterion-referenced test measures a student's performance using criterion scores (Creswell, 2005).

Early childhood education: Early childhood education refers to formal education for children from birth to age 8 years (U.S. Department of Education, 2011).

Learning Accomplishment Profile (LAP-3): The LAP-3 is a criterion-referenced record of a child's existing skills designed to assist teachers with developing developmentally appropriate learning objectives and to measure rate of progress through changes in development (Sanford, Zelman, Hardin, & Feinberg, 1992).

National Association for the Education of Young Children (NAEYC): Analysts at the NAEYC set standards of excellence in early childhood education. The NAEYC is the leading force for developing children's well-being and early knowledge by expanding the quality of early childhood programs serving children from age 0 to 5 years (NAEYC, 2005).

Prekindergarten and preschool: These terms are interchangeable throughout this study and defined as the initial formal academic setting that a child attends (Magnuson et al., 2003).

Tennessee Voluntary Prekindergarten: The mission of the Tennessee Voluntary Pre-Kindergartener Program is to intensify students' admittance to early childhood education. The program has received national recognition from the National Institute for Early Education Research (2012), which sets benchmarks and standards of quality for early education programs.

Assumptions, Scope Limitations, and Delimitations

Assumptions

An assumption of this study was the data collected from the early childhood programs in Shelby County were accurate, reliable, and reported appropriately. Because these data are under strict quality control, and the school administrators who oversaw the data collection followed state and federal guidelines, the assumption was likely reasonable. The other underlying assumption was that the participants interviewed were truthful and sincere about their answers. Because participation was voluntary and identity was preserve anonymity, this assumption was also reasonable.

Scope

The scope of the study was to understand the differences between early childhood programs and literacy achievement. Every student enrolled in an accredited preschool program took the examination as part of the screening process for development and enrollment. The study involved an exploration of the pre- and posttest scores of all students to determine if the early childhood program increased the literacy achievement of these students before entering kindergarten.

Limitations

Because the focus of the study was on two schools, results will not be generalizable to the entire population of early childhood programs in the county. The study included one assessment tool that focused only on literacy. Another limitation was the number of children enrolled in the program for at least 1 year. This is a limitation because the Head Start program allows children to enroll at age 3 years allowing children

to enroll in the program for multiple years, whereas others only allow for 1 year of participation.

Delimitations

The study only included a population of prekindergarten children's 2012−2013 LAP-3 test scores. The focus of the study was children's literacy scores to determine achievement and using the LAP-3 assessment tool to determine if attending an early childhood program affected the literacy achievement of kindergarten children.

Significance of the Study

Children should have a head start on education and the learning process as they grow and develop. Improving early childhood programs and increasing literacy in kindergarten students will help educational leaders to meet state and national standards. As students' performance continues to decline, assessing early childhood programs may help educational leaders improve literacy. Education is a lifelong process that is essential for competitive knowledge development and social mobility. All around the world, adults view young children as potentially productive individuals, and their contributions lie in the future; thus, an emphasis on preparing for the future through effective early childhood education is important. Equity is essential in education. Children should have equal opportunities to enhance their educational experiences (Strauss, 2013).

An early childhood program in kindergarten is an investment that can help mitigate the expenses of remedial interventions in primary and elementary schools and leads to improved adult productivity resulting from a decrease in antisocial behaviors. Human capital theory that focuses on the productivity of individuals and conditions that

enhance productivity is the basis of this rationale. Investing in young learners' education leads to enhanced economic returns (Barnett, 2008). High-quality early childhood education is effective and fruitful. Poor early childhood programs do more harm to children who are the most vulnerable. McCartney, Weiss, Kreider, and Simpkins (2004) noted, "The importance of childcare quality is one of the most robust findings in developmental psychology" (p. 5). High-quality early childhood development produces excellent results, and poor quality yields poor outcomes. The quality factors of early childhood development should operate across all learning domains. Quality early childhood programs have shown educational growth in young children into elementary school (Aos et al., 2004, Barnett, 2008; Camilli et al., 2010; McKey et al., 1985; Winter & Kelley, 2008). Prekindergarten education produces judicious effect sizes that positively affect children's cognitive development (Camilli et al., 2010). Early childhood development programs are profitable to young children by promoting a temperament for learning and socialization. High-quality prekindergarten education has a positive effect on school advancement, particularly in the reduction of grade retention, a decrease in special education referrals and placements, and elevating graduation rates (Aos et al., 2004; Barnett, 2008; Camilli et al., 2010). The results of the study include successful early childhood education programs that help to improve literacy.

Social Change

The importance of literacy achievement is evident that the quality of early childhood program is imperative to the achievement of students (Aos et al., 2004). These experiences that the children have influence the overall academics and lead to social

mobility. Investing in high quality early childhood education can lead to social change by enhancing the productivity of individuals and greater economic returns (Barnett, 2008). Due to the wide spread of investments in early childhood education, the need to examine the effectiveness will increase student outcomes and school readiness skills in all developmental domains (Camilli et al., 2010).

Summary

The outcome of this quantitative study will increase the importance of students attending quality early childhood programs. According to Barnett and Jung (2008), quality preschool increases children's learning before kindergarten admission. The results of this study will help policy makers and school administrators to achieve positive social change by ensuring prekindergarten programs are high quality and promote literacy to increase achievement.

Section 2: Literature Review

The purpose of this study was to investigate the effectiveness of early childhood programs on the literacy achievement of kindergarten students. A focused and detailed literature review is necessary to understand effective and ineffective programs and practices. The research areas have a lengthy and respected history. Researchers have not undertaken this combination of topics prior to this study; thus, it was essential to become familiar with studies in each area to build a framework for the study. The literature review included an intensive database search of peer-reviewed articles and journals from ProQuest, ERIC, and Academic Search. The database search also included Education Research and SAGE full-text articles and journals. The key words used in the search were *literacy achievement*, *Piaget*, constructivism, *developmentally appropriate practices*, *early childhood education*, *effective practices in early childhood*, *Vygotsky*, *literacy in kindergarten*, *cognitive development*, *learning environments*, *and cost effective early learning centers*. EBSCO host's Sociological Collection, JSTOR, and Walden Research Library databases, as well as government reports on education, all served to construct the literature review.

The purpose of the literature review in this study was to examine findings of studies on different types of childhood programs intended to develop school readiness on a common background. A common balance will provide policy makers and educators with impartial information that they can use to promote young children's school eagerness. This review also includes practical programs that can help to improve young children's early education. The focus of this review is large-scale studies conducted

within a specified period to make it meaningful to policy makers and educators. The review also included common features of early childhood programs that can make a difference in literacy and achievement. The review included different kinds of approaches deemed applicable to early childhood education.

This section included a review of literature on the main areas of focus of the study to provide a unique perspective of early childhood programs on the literacy achievement of kindergarten students. Through the literature review, I provided a clear understanding of the areas in this study, as well as potential areas of difficulty or areas of study that lack agreement by those involved. I also examined the existing commonalities between different areas of research to build foundations for understanding associations between these areas.

Many researchers have focused on preschool interventions and the general influences of kindergarten education on future school successes (Currie, 2000; Gilliam & Zigler, 2000; Gorey, 2001; Karweit, 1993). Some researchers also focused on the cost effectiveness of the early education of young children (Barnett & Frede, 1993; Penn et al., 2006). Few researchers have focused on the different forms of early childhood programs and accommodations (Barnett, 1995; Chambers, Cheung, & Slavin, 2006; White, Taylor, & Moss, 1992). White et al. (1992) conducted a meta-analytical review and concluded that early intervention benefited children. However, White et al. did not determine which programs and interventions are effective in promoting early childhood education. Barnett (1995) conducted a review of 36 programs of preschool attendance, Head Start's child care, and home visiting programs. From the analysis, Barnett

concluded that early childhood interventions have short-term effects on intelligence endeavors and sizable effects on school achievement, grade retention, special education placement, and the process of socialization.

Effects of Prekindergarten Programs

Based on the previous studies on long-term effects of kindergarten programs, state lawmakers continuously design new programs. Most of the programs in the 21st century include a cognitive developmental perspective and combine elements of kindergarten instruction for a whole class and small groups alongside children with disabilities. Recently, the focus has been on developing young children's language and emergent literacy. Several researchers have focused on developing new kindergarten programs to focus more on the whole child, including cognitive, social emotional, literacy and language, and fine and gross motor skills. These experimental studies control standards and conditions in recent kindergarten education in several schools in the United States.

Chambers et al. (2006) conducted a comparative analysis of traditional academic programs and developmental cognitive early childhood programs. The analysis discourse revealed the academic programs yielded immediate and midterm cognitive results. The developmental cognitive programs produced long-term educational and socialization adjustment outcomes. The factor other than curriculum that differentiated the two programs was the degree of support that the young learners received from their teachers, who had the responsibility of implementing the curriculum.

Based on their meta-analysis of the effects of early childhood educational intervention programs on social and cognitive development, Camilli et al. (2010) noted

crucial findings that are essential for this study. Using data collected from 123 studies, Camilli et al. conducted a comparative analysis of early childhood interventions with a no-intervention group. Their findings reinforced the previous evidence that indicated the importance of kindergarten programs focusing on social, school progress, and cognitive outcomes.

In a more organized comparative meta-analysis on the effects of early childhood curricula on children's receptive and expressive vocabulary, Darrow (2009) evaluated 17 early childhood curricula. Taking data sample from 29 separate studies, Darrow concluded that early childhood curriculum interventions had no notable remarkable differences from the control groups on vocabulary development by the end of kindergarten. However, Darrow could not identify the effects of particular early childhood programs on young learners' overall development.

Researchers at the United Kingdom for Excellence and Outcomes presented findings from their study on improving national data to improve education outcomes for children in the early years, specifically for young children living in poverty and minority communities (Coghlan et al., 2009). The review also identified best practices with young children from birth to 7 years. Poverty affects more than 2.9 million young children and youth in the United Kingdom, including Bangladeshi, Pakistani, and Black non-Caribbean children. These children perform poorly in academics and make less progress in learning in their early years. Most of the relationships between ethnicity and childhood development outcomes relate to poverty and the ability to learn English.

Evidence strongly suggests that implementing focused strategies for mediating family and child poverty can improve the range of early childhood program outcomes for young children (Coghlan et al., 2009), which includes using targeted interventions and trained bilingual teachers and mainstreaming English to the curricula of English-language learners. Coghlan et al. recommended providing high-quality preschool learning environments to ensure children from poor and disadvantaged families attend preschools. The review also included recommendations such as ensuring sufficient playtime for the children to enable them to explore their own interests and to take personal responsibility for their own learning and training teachers to offer sufficient opportunities for sustained creativity through interactions and open-ended questions. The report also indicated that the goals of early childhood programs are achievable through strong leadership in curriculum and planning, low turnover, high staff qualifications, and support for effective home learning settings.

Early Intervention

Changing young learners' experiences substantially affects their learning and development, especially when intervention programs start early (Klein & Knitzer, 2006). The view of early learning is sustained by other researchers who stated that early learning of your children provide the groundwork for development and is an indicator of imminent academic achievement (Barnette & Frede, 2010; Carbanaro, 2006; Foster & Miller 2007). For example, Head Start's comprehensive program for children under the age of 3 years and their families promotes language, social, language, and emotional development (National Institute of Child Health and Human Development, 2003). The successes of

Head Start indicate high-quality services for young children are rare in the United States, which has a long-lasting effect on children's development, capacity to regulate their emotions, and learning abilities. High-quality early childhood programs in kindergarten benefit children, especially children from low-income families, more than poor-quality programs do. Fewer children living in poverty attend high-quality kindergarten programs than children living in high-income households (National Institute of Child Health and Human Development, 2003). According to Loeb, Fuller, Kagan, and Carrol (2004), the effect of teaching quality in the early grades shows a similar pattern; Hamre and Pianta (2001) also found that teaching quality in the early grades shows a similar pattern. In addition, researchers have identified specific predictors of literacy achievement and development among young children. Some of the predictors, including language skills, mathematics literacy, dimensions of emotional and social competence, and cognitive functioning, relate to how children fare in school. These predictors can be supported when children are exposed to leaning environments that nurture literacy and language development (Roskos, Tabors, & Lenhart, 2009).

In the literacy and language domain, vocabulary knowledge and other aspects of oral language are essential predictors of children's comprehension and reading. According to Dickinson and Tabors (2001), children with limited vocabulary who manage to acquire basic skills still encounter difficulties as they progress to elementary school classes. Snow (2007) noted that a vocabulary deficit impedes understanding and thus the acquisition of knowledge necessary to succeed across the preceding early

childhood programs and curriculum. Snow (2005) also indicated that young children who hear little or no English at home have more difficulties with English comprehension.

To reduce the achievement gap between disadvantaged and advantaged children, educators in early childhood programs need to start with vocabulary development to bring young children's oral language and vocabulary development closer to a trajectory typical of young children from educated and affluent communities. For children with oral language problems to gain linguistic and vocabulary development, there is a need for elementary grade reading, and their teachers should engage them in language instruction throughout the day (Snow, 2005). In addition, unstructured programs rich in linguistics, which area conversation between adults and children on given topics, are sustained through a series of exchanges of back and forth conversation. Dickinson and Tabors (2001) provided compelling evidence that children's phonological awareness and alphabetical knowledge are significant factors of proficiency in writing and reading.

Phonological Awareness and Literacy

Phonological awareness training programs include a variety of activities that enable children, especially those with disabilities, to hear and understand sounds in language. Almost and Rosenbaum (1998) noted phonological awareness programs focus on teaching children to rhyme and alliterate in language. Some of the activities they noted in their study that helped to realize this were as follows. First was rhyme detection training, such as teachers engaging children in rhyming words, especially rhyming words in series with different sounds. Second was blend training, where teachers say four sounds and train children how to blend the sounds together. Third was segment training,

which involves training children on the different sounds of words at phoneme, word, or syllable level.

Teachers can employ phonological awareness training programs in groups or individually. The practices are a core part of early childhood programs or when used as a supplement in regular classroom programs. These training practices are suitable for specific populations of young learners, such as those with developmental delays and learning or language disabilities.

O'Connor et al. (1993) studied the effects of phonological awareness practices on 22 children under the age of 5 years with developmental delays in prekindergarten using randomized block design by stratifying children by age and ranking them based on a cognitive pretest. Children received three types of phonological awareness training. The children taking part in the blending training were in small groups, which was one of the What Works Clearinghouse (WWC) protocols that educators should follow when working with children with disabilities. O'Connor et al. noted three positive differences between the intervention (blending) and comparison groups on the outcomes in the language competencies domain. The study revealed the significant positive effects of phonological awareness programs, as there was no negative statistical effect noted.

In a morphological and phonological awareness study on two groups, children in the intervention group received phonological awareness training, and children in the comparison group received morphological awareness training (Sweat, 2003). Both intervention groups participated in individual and group sessions longer than 12 weeks. The participants were all children in four kindergartens. Two statistical differences

emerged from the comparison and intervention groups. The WWC protocol indicated the two differences remained unjustified because the average effect sample was large enough and educators could not empirically justify it.

Tyler et al. (2003) studied the effects of phonological awareness on a sample of 20 children aged 3 to 5 years with repetitive language and speech development delays. Children in the intervention group received phonological intervention training through activities such as practicing sounds and studying similarities and differences between target sounds. Those in the comparison group received morphosyntactic intervention programs that entailed awareness of phonemes, structured stimulation, and production of morphemes. The intervention involved weekly group and individual sessions during a 12-week period. From Tyler et al.'s study, and echoed by WWC, no statistical differences existed between the comparison and the intervention groups. Based on WWC protocol, the study had an intermediate effect.

Early Childhood Program Essentials

Mathematics education is also an essential program for early childhood education, as it is the key to increasing children's readiness and shrinking the achievement gap. According to researchers at NAEYC and National Council of Teachers of Mathematics (2004), kindergarten students' knowledge of mathematics strongly predicts mathematics learning and overall literacy abilities and skills. Mathematics receives little attention in kindergarten. One of the reasons attributed to this problem is that early childhood teachers themselves lack confidence and skills to shift their attention into mathematics in the training programs (Early et al., 2005).

Mathematics and literacy concepts and skills in a robust early childhood program are a recommendation, especially when delivered in an engaging and developmentally appropriate manner. To achieve such developmental improvements, a considerable strengthening of the early years of teaching and curriculum is necessary. Failing to improve children's literacy and achievement will accelerate the inequities of low performance of the U.S. student population as a whole.

Other than predictors such as mathematics and literacy, research has shown that children's emotional and social competences, as well as other capabilities, cut across the social and cognitive development of young learners. For example, studies have shown that emotional competences link to academic and cognitive performance (Raver et al., 2007). In the emotional domain, a number of factors such as responsibility, independence, and cooperation predict how children transition to school and how they fare in their education from one year to the next (McClelland, Cock, & Morrison, 2006). An essential factor in children's performance in kindergarten is self-regulation. Mounting research evidence has shown that self-regulation in young children predicts their functioning in later life in areas such as problem solving, cognition, and planning, thus contributing to the success of young learners (Bredekamp, 1987; Hymes, 1995).

Characteristics of High-Quality Early Childhood Programs

The quality of early childhood programs is a critical factor in a child's literacy development. The staff members of a high-quality early childhood programs necessary to implement childhood programs. In addition to a well-equipped and safe early learning setting, the teaching strategies of practitioners can contribute to the quality of the

program and ensure effectiveness for young learners and families (Helbrum, 1995; Peisner-Feinberg et al., 2001). Professional development helps practitioners develop more knowledge and improve teaching and intervention programs and is a vital link in the relationship between the quality of early childhood education and the quality of the programs.

In addition, the shift of attention to the quality of an early childhood program and the quality of early childhood workforce included the growing number of young children with disabilities. This shift in attention is essential in ensuring children enrolled in kindergarten who are living with disabilities such as autism have their needs attended to effectively (Buysse, Skinner, & Grant, 2001). Data from the U.S. Department of Education (2007) indicated that leaders in several states are making remarkable progress in designing and implementing programs that serve children with disabilities in an inclusive manner. Thirty-six out of 59 territories and states reported 50% of the kindergarten students with disabilities are in their early education programs. Based on the increasing number of early childhood programs that serve children with disabilities, professional development activities are essential for both general and special early educators and specialists to try to improve general early childhood programs.

Policy makers and educators assess the quality of early childhood programs based on improvements and childhood program standards. The NAEYC's Early Childhood Program Standards and Accreditation Criteria (NAEYC, 2009 b) are examples of standards that define the quality of global early childhood programs in the United States. Existing early childhood programs such as those stipulated by NAEYC focus on the

needs of the general population of young learners; thus, improving the quality of early childhood programs is not sufficient to address the individual needs of children with developmental delays, autism, cerebral palsy, and other disabilities (Bailey, McWilliam, Buysse, & Wesley, 1998; Buysse, Wesley, Bryant, & Gardner, 1999).

Examining the dimensions of high-quality inclusive programs is essential in the evaluation, regulation, and improvement of the quality of inclusive experiences for young learners with developmental delays and disabilities and their families. In addition to the general quality of early childhood programs, attention can be on the quality of inclusive programs and the specific intervention programs and practices needed to improve the existing standards and the professional development on early education of children (Division of Early Childhood & NAEYC, 2009). The lack of a common understanding of professional development has contributed to the absence of shared vision for planning, implementing, and evaluating professional development aimed at improving the quality of early childhood staff (Buysse, Winton, & Rous, 2009). The view of methodological approaches central to early childhood programs are essential as the review of previous studies on quality early childhood program. Thus, this study includes a review of the comparative methodology of early childhood development studies by previous scholars to establish effective programs.

Child advocates, educators, and politicians have highlighted results from longitudinal studies on the efficacy of preschool interventions for children from low-income families and supported the expansion of government-funded early childhood intervention programs such as Head Start's child-care programs for low-income families.

Scholars have questioned Head Start's results, which emerged from experiments that involved high-quality intervention programs (Chubrick & Kelley, 1994; Haskins, 1989; Woodhead, 1988). The basis of the critique was the intensity and quality of preschool programs, which educators do not replicate in contemporary typical programs; thus, programs cannot assume similar effects. The assumption that intervention programs are alike has limited the influence of practitioners of longitudinal studies on early childhood programs, thus making it difficult to investigate specific services provided in the early childhood programs and the components of these programs that influence children's development.

The basis of this scholarly discourse was a review of early studies on early childhood programs and determining their effectiveness based on the outcomes of the programs. The scholars, researchers, and educators who designed them have given these programs different names. The programs also have different levels of effectiveness (strong, moderate, limited, and insufficient) on a child's development. These programs are a reflection of the earlier discussed literacy and language activities common in kindergarten levels of educational development: oral language, phonological awareness, print awareness, and alphabet knowledge. The programs reviewed are Head Start Program, State Pre-K Program, and Early Childhood Pre-School Programs (Day care).

Analysis of Early Childhood Program

The National Association for the Education on Young Children has described a high quality early childhood center as an environment that is secure, loving, and nurturing while supporting physical, social, emotional and cognitive development of

children and being reactive to family needs. High quality early childhood programs are measured through quality indicators. These indicators have been identified by researchers as process and structure (Harms et al., 2005; Cryer, Tietz, Burhcinal, Leal, & Palacios, 1999). The interactions among teachers and students, the materials and the activities are all known as the process of quality indicators in which experiences children encounter in the early childhood program. The structure indicators such as adult-child ratio, small group size and classroom size are characteristics of high quality early childhood programs (Espinosa, 2002). ECE programs that service at-risk students have a special interest in their student's language, families, heritage and culture (Bridges & Dagys, 2012; Cardenas & Cardenas, 1977; Division of Early Childhood, 2010). Cultural sensitivity (Ford, 2014), cultural knowledge, and culturally responsive instruction are an essential part of a high quality early childhood programs. Research findings have long-established the earlier the intervention the more positive effect on the child's literacy development (Davis, 2009).

Head Start Program

Head Start is a preschool program that targets disadvantaged children to improve their skills and to reduce the achievement gap between them and their advantaged peers. This initiative began as part of President Lyndon B. Johnson's war to fight poverty among the American people. The researchers of several studies have closely related Head Start to early childhood programs. Some studies involve small-scale programs and others include large-scale programs that generally produce low quality compared to the small-scale programs. Nonetheless, researchers have shown that Head Start has significant

short-term and long-term effects that often have a significant effect on disadvantaged children. In this regard, some of the model programs have yielded exciting results in terms of improving educational attainment among young learners. Educators can use many interventions to improve early childhood education. However, the focus of this review is on early childhood programs for kindergarten children (Currie, 2000). Head Start programs include several elements to help promote positive outcomes among children and their families. These elements include child development, family development, community building, staff development, administration and management, continuous improvements, children with disabilities, socialization, and curriculum.

Wasik and Bond (2001) developed the Interactive Book Reading Program to promote the literacy and language proficiency of young children. The program is an expansion of a dialogue reading program, where dialogue reading takes place in a small group setting, and the Interactive Book Reading Program is for a whole-class environment. Teachers engage in shared reading though asking open-ended questions and encouraging students to use their newly acquired vocabularies. To promote effective and objective sharing experiences, teachers have sets of books that represent target vocabularies. In addition, teachers receive guidelines and instructions on interactive reading strategies. These strategies involve defining words, providing opportunities for young learners to use vocabularies from the books, and asking open-ended questions. Prior to reading time, teachers introduce the children to a set of target words and concrete objects. At the end of every book-reading experience, young learners are encouraged to use target words extensively.

Wasik and Bond (2001) investigated the effect of the Interactive Book Reading Program on preschoolers. The participants were 121 children from early childhood centers in Baltimore, Maryland. Most of the participants in the study were African Americans eligible for reduced-price or free lunch. Wasik and Bond randomly assigned four teachers to either intervention or control groups, which made the study a randomized quasi-experiment. At the end of the study, the intervention group outperformed the control group with an effect size of +1.33.

Wasik, Bond, and Hindman (2006) conducted a similar study, but with more rigorous training for teachers in using the teaching guidebook to enhance children's oral language development. In this regard, teachers received encouragement to use guidelines and teaching materials throughout the study. The key components in the program included asking questions, building vocabulary, and making references and connections. The study included two Head Start centers with assigned treatment and control conditions. In addition, the 207 students in the study were from a low socioeconomic background and most were African Americans. These children took a pretest in autumn and a posttest in spring. After the study, the posttest treatment scored higher than the control group on language measures, with an effect size of +0.58. There were no significant differences in alphabet knowledge between the two groups.

State-Funded Prekindergarten Program

Prekindergarten education has changed significantly during the past several decades (Barnett, 2008; Barnett & Frede, 2011; Bayat, Mindes, & Covitt, 2010; Cabell, Justice, Konald, & McGinty, 2011; Gorey, 2001; Sylva, Melhuis, Sammons, Siraj-

Blatchford, & Taggart, 2011), with prekindergarten enrollment growing exponentially (Barnett, 2008). When poor reading and literacy skills threatened the academic success of students in Shelby County, Tennessee, elementary school educators recognized the need for effective prekindergarten programs. In an effort to increase literacy and achievement in Tennessee, the Voluntary Pre-Kindergarten for Tennessee Act of 2005 passed with bipartisan support from the Tennessee General Assembly, thereby increasing the state's investment in early childhood education and access for all children (Tennessee Alliance for Early Education, 2013). The Tennessee Voluntary Pre-Kindergarten program allows early childhood programs to bid on classrooms to provide early education to 4-year-olds. The partnership allowed leaders of early childhood programs to work closely with the school system to ensure they were following the guidelines. Programs such as Head Start, day care, and privately owned centers were able to bid for the classrooms.

State funded prekindergarten programs have expanded over the years and federal and state policy-makers have invested in many early childhood programs that can increase the literacy achievement and effect children and families. Research on early childhood programs has demonstrated positive effects on children's readiness for kindergarten. Three studies concluded that children who attend prekindergarten programs gain in cognitive development.

One study of universal prekindergarten in Oklahoma has largely effected student's ability to identify letters and pronounce words. According to the research, there was a 53% gain in letter-word identification in test scores (Gormley, Gayer, Phillips, & Dawson (2005). Similar patterns were found in a five state study of Michigan, New

Jersey, Oklahoma, South Carolina and West Virginia. Researchers found large effects on children's awareness or print and letter recognition as well as substantial effects on math skills and vocabulary development (Wong, Cook, Barnett, & Jung, 2008). During an early childhood longitudinal survey of children entering kindergarten, data was found to have smaller gains from prekindergarten attendance than those found in Oklahoma and the five-state study. However, the average gains of some children in the prereading skills had moved from the 50th to the 55th percentile.

Child Care Early Childhood Programs

Early childhood programs have had strong support and evaluations from three model programs. These programs include The Abecedarian Project, The High Scope/Perry School Preschool and the Chicago Child-Parent Center. These three programs provided early childhood interventions that have had strong effects on school outcomes including increased graduation rate, grade retention, and a reduction in special education placement. Child care programs studies have found some positive outcomes on prekindergarten cognitive and social development (Barnett, 2002). One large-scale study concluded the effects of different amounts and types of early care and education on learning and development are based on natural variation. According to the study (Sylva, Meluish, Sammons, Siraj-Blatchord, & Tagart, 2004), cognitive development is a predictor in attendance based on the number of months a child participates in an early childhood program. In a follow up of the study, preschool participants had significant gains in reading and math skills. Although studies have found mixed reviews regarding students who participate in center-based preschool programs, prior to entering

kindergarten, these students demonstrate better cognitive and language skills and have fewer behavior programs compared to children in family based or informal child care with similar quality (Clarke-Stewart, 1991; Dowsett et al., 2008; Garces, Thomas, & Currie, 2002; Loeb et al., 2004; NICHD Early Child Care Research Network, 2002b, 2003a).

Effects Across Types of ECE Programs

Participation on some type of preschool program is becoming normal as the public support and funding are pouring into early literacy. Although the uniformity in standards and policies vary in the options such as private child care, Head Start, and state prekindergarten programs, there have been some positive short and long term effects that have shown growth in a child's learning and literacy development. Research has shown that well-designed preschool programs have improvements in school readiness including higher education attainment, elevated test scores and a reduction in grade repetition and special education services. Research has shown that the long term benefit of student achievement occurs in students who are academically disadvantaged (Barnett, 2008).

In a multiple meta-analysis study performed over the past 25 years, preschool education was found to produce an average immediate effect of .50 a standard deviation on cognitive development. This result is equivalent of 7 to 8 points on an IQ test and 30th to the 50th percentile on achievement test. This increase in gains is sufficient to reduce half of the school readiness gap between children in poverty and the national average. When students enter kindergarten after being enrolled in a preschool program option,

studies have shown unwavering results on cognitive development, school readiness and social competence.

Immediate, Intermediate and Long-Term Outcomes

Other studies include quantitative measures such as oral language, phonological awareness, and emergent literacy. These include print skills, knowledge of the alphabets, cognitive measures, and emergent mathematics. Assessing other key skills incorporated in studies will indicate whether researchers addressed them in experimental or control groups. The manner in which the instructors rated the children's cognitive and social skills and the instructors' general teaching strategies may determine the immediate outcomes of the study. The results of this proposed study may indicate that the teachers' knowledge of the study might influence their perceptions and attitudes of the learners' behavior in the experimental groups (Klein & Knitzer, 2006). Some researchers have focused on the long-term outcomes of early childhood programs. These include young learners' literacy skills and mathematics outcomes. Others have focused on the intermediate outcomes such as school attendance, referrals, and grade retention (Coghlan et al., 2009). A few researchers have focused on the long-term effects of early childhood education after secondary schools and into adulthood. The outcomes of such studies include the long-term effects of early childhood interventions in terms of education and social adjustment determinants such as delinquency, welfare dependence, employment, teenage pregnancy, and graduation from a secondary school to university (Hamre & Pianta, 2001).

Limitations of Previous Studies

It is essential to state the limitations that affected previous investigations into the effectiveness of early childhood programs. First, researchers conducted experimental studies using a quantitative research design. Researchers can learn a lot from qualitative research designs and correlation research and can add more insights to understand the short-term and long-term effects of early childhood programs. In addition, combining the two research methodologies would allow a comparative perspective (Xuei & Meisles, 2004).

Second, the focus of these studies was childhood programs used in early childhood settings and expected effects during a 12-week period. The emphasis is still on providing education policy makers with useful information on supportive mechanisms of practical early childhood programs. Such a goal is not achievable in short-term studies, as theory-driven studies may not yield useful information (Gorey, 2001).

Third, the focus of these studies is on the cognitive and academic outcomes of early childhood programs while giving less attention to socio-emotional outcomes. Finally, the researchers of these studies employed traditional measures of outcomes of early childhood programs, precisely individual standardized tests. These measures are essential for examining the practical outcomes of early childhood programs. However, the focus of these studies was not on the experimental measures of content covered in experimental groups (Camilli et al., 2010).

Longitudinal Study Design

Longitudinal studies are suitable for investigating the effect of early childhood programs and practices on child development outcomes curricula and program practices. Policy makers have examined these study practices in longitudinal studies of programs for children the age of 5 years to identify similarities that explain the effectiveness of these programs to improve future program development efforts. Examining the effects of curricula in young children is a complex task because the same design problems that affect all evaluation research also affect curriculum and program research. Some of the common problems encountered relate to sampling designs, program groups, and dropouts from a participant and misinterpretation of results (Loeb et al., 2004).

The design of several program approaches is to achieve different goals and outcomes. Comparing programs on the same outcome measurements may show differences in their full effects in young learners. The other source of difficulty is that children's development is a complicated phenomenon influenced by several environmental factors, and children shape their environment through their own actions. Thus, different instructional methods stimulate the social, cognitive, and emotional aspects of children's development. The complexities of children's development and multiple factors make examining effective early childhood programs a difficult task. Children with certain characteristics and family backgrounds may benefit from one type of program, whereas others may benefit from another. Practitioners and policy makers try to ensure the early childhood programs offered to young children will promote their development. Several lines of research on early childhood programs have yielded

consistent findings about programs that support positive child development (Magnuson et al., 2003).

Categories of Research Design

This study included three research designs. A randomized experiment will include kindergarten learners and schools randomly selected and assigned the treatments. When researchers randomly assign treatment or intervention programs to schools, and few schools manage to provide enough evidence on the level of random assignment, then the study becomes a randomized quasi-experiment (Slavin & Madden, 2008). In comparative studies, researchers compare control groups and experimental groups on key variables.

Presentation of Findings

Findings present key study features, program outcomes, and quality of programs in narrative form in this study. Where necessary in terms of the availability of more than one study of a similar program, I conducted a quantitative analysis. A narrative analysis of the synthesis that is statistically and educationally appropriate will be essential. To make the findings for each program comprehensive to educators seeking effective early childhood programs, I presented the programs on a rating scale. In this sense, a balance of mythologies, effect sizes, sample sizes, and other factors receives consideration (Slavin & Madden, 2008). Categories of effectiveness follow.

The evaluation of early childhood programs with strong evidence of effectiveness will include a large randomized experimental study with a weighted mean of +0.20 and a sample size of 250 students from at least 20 classes. The effects of the programs can be cognitive or social outcomes at the end of kindergarten. The programs evaluated for

moderate evidence of effectiveness include studies with a sample size of 125 young learners from at least 10 classes and a weighted effect size mean of +0.20 for quantitative measurements. The programs with limited evidence of effectiveness are the same for moderate effectiveness, except they have a weighted effect size of +0.10 to +0.19 across all measures in specific areas of investigation. The programs with insufficient evidence of effectiveness do not qualify for the category of limited effective programs.

Summary

The study of early childhood development programs was an essential part of education discourse; as early childhood experiences define children's future. Early childhood development programs are appropriate for preventing delayed cognitive development and for increasing children's readiness to learn. Effective childhood programs also contribute to grade retention and serve as a place for special education programs for disadvantaged children. Evidence of insufficient childhood programs leads to problems such as adjusting in society, cognitive delays, and risky behavior. It is essential that teachers, managers, and key players in early childhood education ensure they employ effective early childhood programs to encourage cognitive and social development among young learners.

Section 2 included an evaluation of the literature on early childhood programs related to the literacy achievement of kindergarten children. The focus was on program quality and the ways leaders of preschool programs strive to support literacy, social-emotional, and cognitive development. The academic nature of kindergarten has changed (Bassok & Rorem, 2013), and students' learning gains in kindergarten are important to

their overall academic achievement (Claessens, Duncan, & Engel, 2009). Section 3 contains a discussion of the methodology and data collection process.

Section 3: Research Methods

The purpose of this quantitative, quasi-experimental, retrospective study was to examine the effect of different early childhood programs on the literacy scores for prekindergarten students in Shelby County. The study involved comparing test data for students who attended preschool programs or a child-care program. The results could help school districts partner with early childhood programs in developing and offering classes that will improve performance on state-mandated tests to meet the national and federal standards and could help to increase literacy, as well as cognitive and social development, in kindergarten students.

The results of the study provided educational leaders with significant information to help expand literacy competency by identifying which early childhood programs are most effective. By identifying which early childhood education programs are beneficial, evidence can show educational leaders which successful programs may help to increase scores on LAP-3 assessments as well as the English language arts exam, improve existing programs, and provide additional training for the ineffective programs. Section 3 includes a basis of the methodology for the study and an exploration of the literature to determine whether the LAP-3 scores were significantly different depending on the program.

Research Method

The purpose of this quantitative quasi-experimental, retrospective study was to evaluate whether students' literacy scores on the LAP-3 assessment differ depending on their early childhood program. A retrospective quasi-experimental study is appropriate to avoid disrupting existing groups such as classes (Isaac & Michael, 1997). In a traditional

quasi-experimental design, “the researcher assigns intact groups the experimental and control treatments, administers a pretest to all groups, conducts experimental treatment activities with the experimental group only, and then administers a posttest to assess the differences between the groups” (Salkind, 2003, p.46). The study was retrospective in that the intact groups already existed and took pretest and posttests. I analyzed the data collected using study criteria. The analysis sought to determine whether a difference in means existed between Head Start, child care, or not attending a formal early childhood program based on pretest and posttest scores.

The study involved analyzing additional standardized test scores using archival data contained in the Shelby County School District database, as well as cognitive and social development. Some students in the study spent a year in an early childhood program. I coded the identities of the students and assigned numbers so that there was no identifying information.

Determining which early childhood programs are successful could help to improve student literacy, as well as cognitive and social development. Preschool children entering school without the prerequisites for kindergarten is a growing problem, and children throughout the county are not ready developmentally, socially, or emotionally (National Center on Quality Teaching and Learning, 2012). Allowing children to enter kindergarten without the tools needed to succeed may compromise their educational growth as they matriculate through elementary, middle, and high school (Henry, Gordon, & Rickman, 2006).

Research Design

The purpose of this study was to determine whether early childhood programs have a significant difference on kindergarten students using pretest and posttest LAP-3 scores. The unit of analysis was students' test scores in Shelby County, Tennessee. The population was preschool students who transitioned to kindergarten. Each student took a pretest and posttest to determine if early childhood programs were effective. Pretests took place within the first 45 days of school. The students took the posttest at the end of the school year. The early childhood programs offered to the students were Head Start or child care, and some students did not attend a formal early childhood program. The study involved comparing kindergarten pretest scores to posttest scores after 1 year.

A retrospective, quasi-experimental design was appropriate for analyzing previously collected but unanalyzed data for students who attended different early childhood programs. The study did not involve randomly assigning students to groups because the test scores were from archival data. The study was retrospective because the students had already completed tests but the results were not analyzed. Quasi-experimental designs are a type of evaluation that aims to determine whether a program or intervention has the intended effect on the study's participants (Shadish, Cook, & Campbell, 2002). In a retrospective design, the researcher poses a question, looks at information already collected, and classifies participants into group categories (Salkind, 2010).

In this study, administrators from the participating schools district provided the archived data, and I placed the students in groups based on the type of early childhood

program the students attended, if any. The design was quasi-experimental because this design was appropriate when evaluating education programs when random assignment is not possible or practical (Shuttleworth, 2008), as is the case in the present study. Quasi-experimental retrospective designs are appropriate when researchers make comparisons between groups that exist before and after a quasi-independent variable have occurred (Shuttleworth, 2008).

Research Appropriateness

Retrospective, quasi-experimental research is appropriate when analyzing archived data for intact groups (Gay et al., 2006). A quantitative approach is essential to measure variables, assess the effect of these variables on an outcome, test theories on broad explanations, and apply results to a large number of people (Isaac & Michael, 1997). The independent variables for the study were the different early childhood programs, and the dependent variable was the effect of the early childhood test scores on the LAP-3 posttest scores. Understanding the effect of these programs on literacy could assist the school district leaders as well as educational leaders throughout the nation who are trying to bridge the educational gap between effective childhood programs and their cohorts.

Other Research Methods Considered

A qualitative approach to the study was inappropriate because participants were younger than the age of 18 years and lacked the maturity to understand the nature and the intent of knowing which early childhood development program was effective. Qualitative research methods allow for extensive exploration and analysis and allow researchers

more leeway when drawing conclusions from the data collected, which would not be possible with the present study. According to Walonick (2004), qualitative researchers "ask broad, general questions and make no predictions about the campus response, but rely on participants to shape what they report" (p.11). The focus of the study was on testing theories regarding efficacy of effective early childhood programs.

Research Question

This quantitative quasi-experimental, retrospective study had a single research question: What is the difference in achievement between students who attend different types of early childhood programs?

Hypotheses

The study included the following hypotheses:

$H1_0$: There is no difference in achievement between students who attended different types of early childhood programs.

$H1_a$: There is a difference in achievement between students who attended different early childhood programs.

Confounding Variables

Confounding variables are additional variables that may create problems because they experimentally relate to both the independent and the dependent variables (Shadish et al., 2002). Confounding variables may be unavoidable. In the study, some of the confounding variables are attendance for each of the students both in the preschool program and in kindergarten, types of parental involvement, assignment of teachers, and inclusion of students with special needs and language barriers. To control for one

confounding variable, I separated the scores of students with special needs from the aggregated data and analyzed them separately.

Population and Sample

The population consisted of kindergarten students in Shelby County. The sample consisted of students who were administered the LAP-3 assessment exam. The teachers, guidance counselors, and administrators used enrollment data to determine the children's previous education. In addition to the LAP-3 scores, district leaders provided the basis of the mandated state tests. The study included assessment scores from the sample to determine whether a significant difference exists in the early childhood program the students attended based on assessment scores. Students in the sample were students in the Shelby County School District.

Sampling Frame

The sampling frame consisted of all current kindergarten students in the target school district for the 2012–2013 school years. The study did not include the data from students who did not take both the pretest and the posttest, as there was no benchmark measurement. Initially, archival data were obtained for 645 students. Missing test scores necessitated the removal 78 students from the study (n = 567). Boxplots were then used to identify univariate outliers and 52 additional students were removed (n = 515). Finally, Mahalanobis Distances were calculated and 14 other students were removed leaving the final sample to be n = 501 (77.7% of the initial sample).

Interviews with 10 preschool teachers, five from each program, provided insight into the structure and the design of the classroom. Interview data allowed for a more in-depth understanding of multiple viewpoints, beliefs, attitudes, and perceptions.

Intervention Group Classification

Each student in the sample was assigned to one of the categories of early childhood programs: Head Start, child care or day care, or no formal early childhood education. Students' placement in one or more of these groups will help improve literacy for the targeted population. The data analysis administrator collected and recorded the data in the district's archival database, and I compared the data with pre- and posttests of the students' LAP-3 scores.

Informed Consent

The school district's vice president of early childhood services, along with the assistant superintended for curriculum and instruction, received information regarding the study. The assistant superintendent informed the school board about the study and informed the board that I would protect the privacy of both the district and the students. I also informed both the vice president of early childhood services and the assistant superintendent that I would share the results of the study with the district after the dissertation is complete and published.

Data Collection

The data collected for the retrospective, quasi-experimental research study was for students enrolled in an early childhood program in the 2012-2013 school year who were in kindergarten in the 2013-2014 school year and did not achieve proficiency on

their Tennessee mandated exam. The data remained stored in the district's archival database, and neither the district's name nor students' names will appear in the study. The study involved examining early childhood programs by comparing the pre- and posttests on the students' exams. The results of the study revealed which early childhood programs are most effective and provide educational leaders with a knowledge base for better identifying standards for early programs to use to improve literacy.

Data Analysis

Results were compared from students' 2012-2013 examination from both pretest and posttest scores using the school district's archival database to determine which early childhood programs are effective. The one-way analysis of variance (ANOVA) was suitable to test whether differences exist in mean difference scores of the LAP-3 exam by early childhood program. An ANOVA was suitable when seeking to determine the difference between three or more groups receiving different treatments (Simon, 2006, p. 113).

Repeated measures ANOVA with a between-subjects and within-subjects design (Pangano, 2012) was suitable to test whether differences exist in mean pretest and posttest scores on the LAP-3 and pretest and posttest scores within groups. An ANOVA was suitable to test the significance of the differences between the set of sample means (Simon, 2006) that was tested. I hypothesized a relationship between the independent and the dependent variables, and I tested two or more means. An *F* parametric test was appropriate because the study involved testing multiple means.

Data from the archival district database are parametric and consist of numbers that are integers or ratios. I implemented the level of significance. An *F* value close to 1 "indicates that there are no significant differences between the sample means" (Simon, 2006, p. 113).

Using SPSS 15.0 maximized the reliability of the data collected by calculating mathematical averages, ranking functions, and other statistical results with standard formulas. The task of data entry limited reliability and was complete before the analysis begins. I will destroy any raw data containing school codes associated to school names 5 year after I defend the project to preserve confidentiality. Data were in the form of the results of statistical tests, scatter plots, tables, and narrative in Section 4. Section 5 will include a discussion on the implications and a comparison to literature findings.

Internal and External Validity

Validity requires an examination of what is reliable in a study. Trochim (2006) defined validity as "the best available approximation of the truth of a given proposition, inference, or conclusion" (para. 1). Trochim posited that almost all social research involves measurements and observation, and researchers need to ensure they measure what they intend to measure and understand how circumstances influence researchers' observations. Trochim also noted researchers make conclusions from what they measure, which is paramount when analyzing data in a study.

Internal Validity

Internal validity is the way a researcher can infer valid conclusions regarding the causal effects between variables (Simon, 2006). Leary (2008) posited, "Although quasi-

experimental designs do not allow the same degree of certainty about cause-and-effect relationships as an experiment does, a well-designed quasi-experiment can provide convincing circumstantial evidence regarding the effects on one variable on another" (para.7). The study included an analysis of research that will determine the effect of early childhood programs on literacy achievement using pre- and posttest LAP-3 scores. Some unavoidable factors such as parental support and involvement and other outside variables could have affected the posttest scores in both a positive and a negative manner, but I did not control these factors, and therefore they will be a limitation to the study. Robbins (2008) posited that student maturation could also affect performance on tests. The improvement might be a result of a student's normal intellectual development because of certain factors such as cognitive maturity and genetics. As the tool to measure student improvement is a kindergarten exam, natural maturation may play a role in student improvement on test scores. This too will be a limitation to the study.

External Validity

External validity is the ability to generalize conclusions where the findings are relevant not only to participants and settings involved in the study but also to others not involved in the study (Simon, 2006). The study revealed relevant data to the educational leaders in a school district in Shelby County, where approximately 29% of elementary students in third to fifth grades are reading below the basic level (Tennessee Department of Education, 2012).

Summary

The purpose of this quantitative, quasi-experimental, retrospective study was to determine whether reading and literacy scores vary depending on the type of early childhood program children attended in a Shelby County school. The quantitative analysis involved comparing archived pre- and posttest LAP-3 scores to assess whether the early childhood program had a significant difference on students' academics. The study is important for educational leadership because school districts throughout Tennessee and nationally can benefit from determining whether varied early childhood programs were successful in improving student literacy. In accordance with the U. S. Department of Education, No Child Left Behind Act, (2008) help to fund reading and literacy programs that scientific evidence has proven to be effective in helping students to improve reading achievement. Providing educational leaders with scientific evidence supporting early childhood programs can stop district, state, and the federal government leaders funding unsuccessful programs and help to increase reading achievement, which would help to reduce to drop-out rates and decrease the social implications associated with dropping out of school. A quantitative, quasi-experimental research design was appropriate for this study because quantitative research is a methodology that involves investigating trends and possible relationships between variables (Shuttleworth, 2008).

Section 4: Results

The purpose of this quantitative, quasi-experimental, retrospective study was to examine the effect of early childhood programs on the literacy achievement of kindergarten children using secondary data consisting of LAP-3 pretest and posttest scores for preschool children entering kindergarten in a school district in Shelby County, Tennessee. There were 501 participants.

The initial sample size was 645; however, the final sample size based on the number of students who were assessed through pre- and post tests was 501. Boxplots were then used to identify univariate outliers and 52 additional students were removed (n = 515). Finally, Mahalanobis Distances were calculated and 14 other students were removed leaving the final sample to be n = 501 (77.7% of the initial sample).

Table 1 displays the frequency tables for selected variables. The participants were either in one of two groups: head start (36.1%) and other preschool (63.9%). For racial/ethnic background, 72.9% were Black or African-American and 25.5% had missing data for that variable. There were somewhat more male (52.3%) than female students (47.7%). The participants' ages ranged from 39 to 70 months (M = 52.15, SD= 6.65).

Table 1

Frequency Counts for Selected Variables (N = 501)

Variable	Category	*n*	%
Group			
	Head Start	181	36.1
	Other preschool	320	63.9
Race			
	Black or African American	365	72.9
	Caucasian	4	0.8
	American Indian/Alaska Native	2	0.4
	Multiple	2	0.4
	Unknown/no response	128	25.5
Race			
	Other/unknown	136	27.1
	Black	365	72.9
Gender			
	Female	239	47.7
	Male	262	52.3
Age (in months)[a]			
	39–45	95	19.0
	46–50	103	20.6
	51–55	129	25.7
	56–60	129	25.7
	61–65	42	8.4
	66–70	3	0.6

[a]Age: $M = 52.15$, $SD = 6.65$.

Table 2 displays the descriptive statistics for the age equivalent developmental skill scores. Each of these seven skill domains were tested at three times: start, middle, and end of the school year. Inspection of the table found all students to gain in skill from the start to the end of the study period. As an example, mean gross motor skills improved from the start (M = 55.34), to the middle (M = 61.56), to the end of the study (M = 66.07).

Table 2

Descriptive Statistics for Age Equivalent Developmental Skills (N = 501)

Variable	*M*	*SD*	Low	High
Gross motor start	55.34	13.51	12.00	72.00
Fine motor start	49.76	14.11	12.00	72.00
Prewriting start	49.08	11.24	18.00	72.00
Cognitive start	45.77	13.21	12.00	72.00
Language start	42.50	10.21	18.00	72.00
Self-Help start	53.83	11.46	15.00	72.00
Personal/Social start	56.99	14.09	12.00	72.00
Gross motor middle	61.56	12.14	36.00	72.00
Fine motor middle	57.13	11.79	24.00	72.00
Prewriting middle	55.15	9.67	18.00	72.00
Cognitive middle	51.93	11.37	12.00	72.00
Language middle	46.48	10.46	18.00	72.00
Self-Help middle	59.59	11.00	36.00	72.00
Personal/social middle	62.75	12.01	24.00	72.00
Gross motor end	66.07	9.97	36.00	72.00
Fine motor end	62.18	10.39	30.00	72.00
Prewriting end	59.46	8.73	30.00	72.00
Cognitive end	56.51	10.90	18.00	72.00
Language end	50.13	10.89	24.00	72.00
Self-Help end	63.74	10.43	36.00	72.00
Personal/social end	66.77	9.58	24.00	72.00

It should also be noted that for all 21 scores, some children had the maximum score of 72 points, which suggests a "ceiling effect" had occurred (Jackson, 2012). This would suggest that to some unknown degree, some of these scores were likely to underrepresent some of the children's true skills and abilities (Table 2).

Table 3 displays the descriptive statistics for gains in age equivalent developmental skills sorted by the highest mean. For the seven skill domains, the largest gain from the start to the end was for fine motor skill (M = 12.42). The smallest gain from the start to the end was for language skill (M = 7.63).

Table 3

Descriptive Statistics for Gain in Age Equivalent Developmental Skills Sorted by Highest Mean

(n = 501)

Gain score	*M*	*SD*	Low	High
Fine motor	12.42	10.12	0.00	60.00
Cognitive	10.74	8.40	-6.00	42.00
Gross motor	10.73	9.50	0.00	36.00
Prewriting	10.38	7.80	0.00	48.00
Self-help	9.91	9.24	0.00	36.00
Personal/social	9.77	10.42	0.00	42.00
Language	7.63	6.45	0.00	30.00

Cohen (1988) suggested some guidelines for interpreting the strength of linear correlations. He suggested that a weak correlation typically had an absolute value of r = .10 (r^2 = 1% of the variance explained), a moderate correlation typically had an absolute value of r = .30 (r^2 = 9% of the variance explained) and a strong correlation typically had an absolute value of r = .50 (r^2 = 25% of the variance explained). Therefore, for the sake of parsimony, this chapter will primarily highlight those correlations that were of at least moderate strength to minimize the potential of numerous Type 1 errors stemming from interpreting and drawing conclusions based on potentially spurious correlations. The likelihood of a Type 2 error (the error that results from failing to reject the null hypothesis when it in fact false - "False Negative") was low given the large sample (N = 501) (Creswell, 2005). Of greater concern, given the sample size, was the possibility of Type 1 errors (The error that results from rejecting the null hypothesis when it is in fact true – "False Positive"). To guard against that possibility, this study relied on the Jacob Cohen's (1988) general rule. Cohen suggested that a weak correlation typically has an absolute value of r = .10 ($r2$ = 1% of the variance explained), a moderate correlation typically has an absolute value of r = .30 (r^2 = 9% of the variance explained) and a strong correlation typically had an absolute value of r = .50 (r^2 = 25 % of the variance explained). This study placed its interpretative emphasis on those correlations that were of at least moderate strength using the Cohen (1988) criteria.

Table 4 displays the Pearson correlations for the seven gain scores in developmental skills with four demographic variables (group, race, gender and age). For the resulting 28 correlations, ten were significant at the $p < .05$ level but no correlation was of moderate strength using the Cohen (1988) criteria. In addition, none of the seven gain scores was significantly related to the student's group. Among the10 significant correlations, the largest were the negative correlations between the student's age with gains in the student's gross motor skills ($r = -.22$, $p = .001$), fine motor skills ($r = -.22$, $p = .001$), and personal/social skills ($r = -.27$, $p = .001$). Students enter head start at age 3. The likely reason for younger children doing better is that the younger a child is, the more rapid their development is in general. There is a ceiling effect for the LAP-3 test in that the test only provides norms up to 72 months, so the older the child was at the start of the year, the less room for growth during the school year.

Table 4

Correlations for Gain in Developmental Skills with Selected Variables (N = 501)

Gain Score	Group[a]	Race[b]	Gender[c]	Age
Gross motor	-.01	-.06	.08	-.22 ****
Fine motor	.05	.06	.03	-.22 ****
Prewriting	.05	.02	.05	-.14 ***
Cognitive	.05	.10 *	-.05	-.21 ****
Language	.06	.12 **	-.03	.10 *
Self-Help	.01	.03	-.02	-.16 ****
Personal/Social	.03	-.09 *	.04	-.27 ****

* $p < .05$. ** $p < .01$. *** $p < .005$. **** $p < .001$.

[a]Group: 1 = Head Start 2 = Other Preschool.

[b]Race: 0 = Other/Unknown 1 = Black/African-American.

[c]Gender: 1 = Female 2 = Male.

Answering the Research Question

The primary research question for this study was "What is the difference in achievement between students who attend different types of early childhood programs?" and the related null hypothesis was "$H1_0$: There is no difference in achievement between students who attend different types of early childhood programs." To test this, three repeated measures ANOVA models were created. The between subjects / independent variable was group (head start versus other preschool setting) and the repeated measure / within subjects variable was time which was the beginning middle and end assessment.

Table 5 displays the repeated measures ANOVA model for prewriting skill based on group. The main effect for group was significant (p = .04). The within-subjects effect for time was also significant (p = .001). However, the interaction effect of group X time was not significant (p = .42). The group X time is the ANOVA interaction effect for the group (between subjects variable) and time (within subjects repeated measure variable. Bonferroni post hoc tests found the head start group (M = 55.71) to be significantly higher than the other preschool group (M = 53.91) at the p = .04 level. Significant gains were noted from the start (M = 49.38) to the middle (M = 55.40) to the end (M = 59.66) with all the gains between the time periods to be significant at the p = .001 level.

Table 5

Repeated Measures ANOVA for Prewriting Based on Group (N = 501)

Source	*SS*	*df*	*MS*	*F*	*p*
Group [a]	1,123.98	1	1,123.98	4.44	.04
Time [b]	24,641.00	2	12,320.50	595.43	.001
Time X Group	36.17	2	18.08	0.87	.42
Error (Group)	126,307.83	499	253.12		
Error(Time)	20,650.25	998	20.69		

[a] Group: *Head Star*t (*M* = 55.71, *SE* = 0.68) versus Other Preschool (*M* = 53.91, *SE* = 0.51).

[b] Time: Start (*M* = 49.38, *SE* = 0.52) versus Middle (*M* = 55.40, *SE* = 0.45) versus End (*M* = 59.66, *SE* = 0.41).

Note. Based on Bonferroni post hoc tests, all three prewriting scores across time were significantly different from each other at the $p < .001$ level.

Table 6 displays the repeated measures ANOVA model for cognitive skill based on group. The main effect for group was significant ($p = .04$). The within-subjects effect for time was also significant ($p = .001$). However, the interaction effect of group X time was not significant ($p = .43$). Bonferroni post hoc tests found the head start group ($M = 52.75$) to be significantly higher than the other preschool group ($M = 50.64$) at the $p = .04$ level. Significant gains were noted from the start ($M = 46.13$) to the middle ($M = 52.21$) to the end ($M = 56.75$) with all the gains between the time periods to be significant at the $p = .001$ level.

Table 6

Repeated Measures ANOVA for Cognitive Based on Group (N = 501)

Source	*SS*	*df*	*MS*	*F*	*p*
Group [a]	1,540.64	1	1,540.64	4.14	.04
Time [b]	26,295.32	2	13,147.66	543.34	.001
Time X Group	40.76	2	20.38	0.84	.43
Error (Group)	185,523.60	499	371.79		
Error(Time)	24,149.61	998	24.20		

[a] Group: *Head Start* (*M* = 52.75, *SE* = 0.83) versus Other Preschool (*M* = 50.64, *SE* = 0.62).

[b] Time: Start (*M* = 46.13, *SE* = 0.61) versus Middle (*M* = 52.21, *SE* = 0.53) versus End (*M* = 56.75, *SE* = 0.51).

Note. Based on Bonferroni post hoc tests, all three cognitive scores across time were significantly different from each other at the $p < .001$ level.

Table 7 displays the repeated measures ANOVA model for language skill based on group. The main effect for head start group was not significant ($p = .48$) while the within-subjects effect for time was significant ($p = .001$). The interaction effect of head start time was also not significant ($p = .28$). Bonferroni post hoc tests found significant gains from the start (*M* = 42.65) to the middle (*M* = 46.58) to the end (*M* = 50.17) with all the gains between the time periods to be significant at the $p = .001$ level.

Table 7

Repeated Measures ANOVA for Language Based on Group (N = 501)

Source	*SS*	*df*	*MS*	*F*	*p*
Group [a]	153.07	1	153.07	0.50	.48
Time [b]	13,083.97	2	6,541.98	456.68	.001
Time X Group	36.21	2	18.10	1.26	.28
Error (Group)	151,547.77	499	303.70		
Error(Time)	14,296.54	998	14.33		

[a] Group: Head Start (*M* = 46.80, *SE* = 0.75) versus Other Preschool (*M* = 46.13, *SE* = 0.56).

[b] Time: Start (*M* = 42.65, *SE* = 0.47) versus Middle (*M* = 46.58, *SE* = 0.49) versus End (*M* = 50.17, *SE* = 0.51).

Note. Based on Bonferroni post hoc tests, all three language scores across time were significantly different from each other at the $p < .001$ level.

The testing of the hypothesis was performed using two methods. These were the correlations for the gain scores with the student's group (Table 4) as well as the three repeated measures ANOVA tests (Tables 5 through 7). Taken together, there was no support to reject the null hypothesis.

In summary, this study used data from 501 students to examine the effect of early childhood programs on the literacy achievement of kindergarten children using secondary data consisting of Learning Assessment Profile (LAP-3) pre- and posttest scores for preschool children entering kindergarten in a school district in Shelby County,

Tennessee. The primary hypothesis for this study a difference in achievement depending on the early childhood programs attended was not supported (Tables 4 through 7). In the final chapter, these findings will be compared to the literature, conclusions and implications will be drawn, and a series of recommendations will be suggested.

Section 5: Discussion, Conclusion and Recommendation

The purpose of this study was to examine the effectiveness of early childhood program on the literacy achievement of kindergarten students. This quantitative, quasi-experimental, retrospective study was to determine whether reading and literacy scores vary depending on the type of early childhood program children attended. The primary research question for this study was "What is the difference in achievement between students who attend different types of early childhood programs?" and the related null hypothesis was "$H1_0$: There is no difference in achievement between students who attend different types of early childhood programs." To test this, three repeated measures ANOVA models were created.

Review of the Research Problem

Improving early childhood programs education has proved to be one of the challenges in educating students. Despite efforts a significant number of children at the kindergarten level lack the necessary skills to do well in school (U.S. Department of Education, Office of Civil Rights, 2014). According to the Office of Civil Rights (2014) data, more than 140,000 kindergarten students in the United States did not advance to first grade in the 2011–2012 school year, which represented approximately 4% of all kindergarten students in public schools. Many of the children lacked basic skills such as knowledge of numbers and letters, knowing how to interact with teachers and peers, and knowing how to hold a book. Such deficiencies can lead to achievement gaps between disadvantaged and advantaged students (Heckman, 2006). This achievement gap has narrowed since 2005 but remains wide. Without opportunities to learn basic skills at a

young age, students from a variety of backgrounds lag behind later in life. Many children from disadvantaged backgrounds have limited access to early childhood programs and are at greater risk of falling behind than are those from advantaged backgrounds. The purpose of this quantitative, quasi-experimental, retrospective study was to examine the effect of early childhood programs on the literacy achievement of kindergarten children using secondary data consisting of LAP-3 pre- and posttest scores for preschool children entering kindergarten in a school district in Shelby County, Tennessee.

Implication for Social Change

The importance of literacy achievement is evident that the quality of early childhood program is imperative to the achievement of students (Aos et al., 2004). These experiences that the children have influence the overall academics and lead to social mobility. Investing in high quality early childhood education can lead to social change by enhancing the productivity of individuals and greater economic returns (Barnett, 2008). Due to the wide spread of investments in early childhood education, the need to examine the effectiveness will increase student outcomes and school readiness skills in all developmental domains (Camilli et al., 2010). The implication of this work includes positive social change that can bring early literacy into early childhood programs that states and federal governments will support mandatory early intervention and prekindergarten programs. Including early literacy in prekindergarten programs will allow for increased achievement throughout elementary (Barnette &Frede, 2010).

Synthesis and Evaluation

The purpose of this quantitative, quasi-experimental, retrospective study was to examine the effect of early childhood programs on the literacy achievement of kindergarten children using secondary data consisting of (LAP-3) pre- and posttest scores for preschool children entering kindergarten in a school district in Shelby County, Tennessee. There were a total of 501 participants.

The primary research question for this study was "What is the difference in achievement between students who attend different types of early childhood programs?" and the related null hypothesis was "$H1_0$: There is no difference in achievement between students who attend different types of early childhood programs." To test this, three repeated measures ANOVA models were created. The between subjects / independent variable was group (head start versus other preschool setting) and the repeated measure / within subjects variable was time. The dependent variables for the three models were for prewriting skill, cognitive skill, and language skill.

The repeated measures ANOVA model for language skill based on group. The main effect for group was not significant ($p = .48$) while the within-subjects effect for time in the program was significant ($p = .001$). The interaction effect of group X time was also not significant ($p = .28$). Bonferroni post hoc tests found significant gains from the start ($M = 42.65$) to the middle ($M = 46.58$) to the end ($M = 50.17$) with all the gains between the periods to be significant at the $p = .001$ level.

Literacy achievement is important for student success throughout elementary school (Cunningham, 2010). By introducing early literacy development in

prekindergarten, student achievement in formal school will be greater than not (Wilson & Lonigan, 2010). Early literacy refers to the knowledge, skills and temperament that children obtain pervious knowledge to actually learn to read and write. This study sought to discover which early childhood programs were effective in literacy achievement. When answering the research question "what is the difference in achievement between students who attend different types of early childhood programs" the study found did not detect significant differences in achievement based on the early childhood program.

The testing of the hypothesis was performed using two methods. These were the correlations for the gain scores with the student's group as well as the three repeated measures ANOVA tests. Taken together, there was no support to reject the null hypothesis.

Discussion of Conclusion in Relation to the Literature

The study involved investigating the effectiveness of early childhood programs on the literacy achievement of kindergarten students, and a focused and detailed literature review in all related areas is necessary. Effective high quality programs serve as a basis for literacy achievement. Several researchers have focused on developing new kindergarten programs to focus further on the whole child, including cognitive, social emotional, literacy and language, and fine and gross motor skills. These experimental studies control standards and conditions in recent kindergarten education in several schools in the United States.

Chambers et al. (2006) conducted a comparative analysis of traditional academic programs and developmental cognitive early childhood programs. The analysis discourse

revealed the academic programs yielded immediate and midterm cognitive results in which students were able to process understand and gain language development. The developmental cognitive programs produced long-term educational and socialization adjustment outcomes. The factor other than curriculum that differentiated the two programs was the degree of support that the young learners received from their teachers, who had the responsibility of implementing the curriculum.

The study of early childhood development programs was an essential part of education discourse; as early childhood experiences define children's future. Early childhood development programs are appropriate for preventing delayed cognitive development and for increasing children's readiness to learn. Effective childhood programs also contribute to grade retention and serve as a place for special education programs for disadvantaged children. Evidence of insufficient childhood programs leads to problems such as adjusting in society, cognitive delays, and risky behavior. It is essential that teachers, managers, and key players in early childhood education ensure they employ effective early childhood programs to encourage cognitive and social development among young learners. Effective early childhood programs that promote literacy achievement are programs that provide essential training for teachers that encourage language development through vocabulary, phonics, and phonemic awareness, rigorous hands on curriculum and a nurturing environment that supports best practices for oral and literacy development.

Recommendation for Future Research

Identifying effective early childhood programs to increase literacy achievement of kindergarten children is vital to the development of students throughout their elementary and high school years. The purpose of this research was to determine the effectiveness of early childhood programs on the literacy achievement of kindergarten students. This quantitative, quasi-experimental, retrospective study was to determine whether reading and literacy scores vary depending on the type of early childhood program children attended. The results showed that there was not a significant difference in achievement in the early childhood program attend. However, when reviewing the data, future research could be used to provide a different assessment tool to measure achievement due to the test only going up to 72 months in which some of the students mastered by the end of the year. Another research opportunity will be to address disparities in programs based on the curriculum and teacher qualification. By addressing these disparities, education leaders will be able to choose curricular that engage students in meaningful hands on experiences that would increase literacy and language. Curriculum integration across all seven domains will also serve as basis for implementing teaching practices that supports early literacy. Because some early childhood programs require certified teachers and others do not, future research will provide insight as to the type of training needed to support early literacy to all students.

Summary

The results of the study provided educational leaders with significant information to help expand literacy competency by identifying which early childhood programs are

most effective. By identifying which early childhood education programs are beneficial, evidence showed educational leaders which successful programs may help to increase scores on LAP-3 assessments as well as the English language arts exam, improve existing programs, and provide additional training for the ineffective programs. Although there was not a significant difference in the child's score on the LAP-3 assessment depending on the program, the youngest student showed the greatest gains from pretest to posttest results. However, the results showed that having student's participant in an early childhood program, increased their literacy, cognitive and prewriting skills all needed to be successful in kindergarten.

In summary, this study used data from 501 students to examine the effect of early childhood programs on the literacy achievement of kindergarten children using secondary data consisting (LAP-3) pretest and posttest scores for preschool children entering kindergarten in a school district in Shelby County, Tennessee. The primary hypothesis for this study differences in achievement depending of the early childhood program was not supported due to the program in which a child has attended. However, data showed that children who attended early childhood programs had an increase in literacy in kindergarten than those who did not.

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Appendix A

Program Option: _____ Head Start _____Day Care

Preschool Teacher Interview

Directions: The following questions will be used to gain insight as to the structure and design of the classroom used for best practices. All answers will be kept confidential and the interview is strictly voluntary.

1. How is your classroom organized?
2. Is there a combination of teacher initiated and child initiated activities? Explain?
3. How often are children able to free play?
4. How do you incorporate literacy into your daily schedule?
5. What curriculum is being used and how is literacy developed in your students.
6. How do you feel about the current assessment being used to assess literacy achievement?
7. How is the assessment data being used to individualize instruction to improve literacy?

Appendix B: LAP-3 Assessment Tool